Internal Review of Phase 1 Work Plan
Site: Baldwin Park Operable Unit, Region 9, California
Contractor: Harding Lawson Associates

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These comments cover the work plan for phase 1, the success of phase 1 at completing the tasks in the work plan, and the draft report on phase 1 as it relates to specific elements in the work plan. More elaborate discussion has been devoted to some of these points in the review of the phase 2 work plan and the phase 1 report.

1. The "Revised Final Phase I Treatability Study Work Plan" (Appendix A) suffers from a number of deficiencies, and it is surprising that the quality of the work is as high as it is under the circumstances. I can only assume that the statement of work was fairly vague. Nonetheless, EPA should have made better effort to ensure that the work plan had been better written.

2. The work plan is somewhat muddled in terms of what is clearly phase 1 as opposed to phase 2. This made following the report somewhat difficult at times. This was to be a phase 1 work plan, but elements of phase 2 kept creeping in.

3. § 3.1, pgs. 4-5: This entire section of the work plan contains no tasks, only background information. This was misleading. This section should have been part of the introduction.

4. § 4.4, pg. 8, col. 1: Evaluation of different sources of microbes is only five sentences. Given the importance of the source and identity of the bacteria, this was an unacceptably brief description of the task. I must conclude that there was substantial technical communication and technical direction from the project officer as a result. Nonetheless, there is no documentation in either the plan or the report to support this assertion. Although the work plan written in response to a statement of work may be indended for the project officer as the principal audience, it should be adequately well-developed so that another expert—whether or not an EPA employee—could read it and discern (1) the rationale for the study design, (2) the agency needs the contractor is attempting to fill, and (3) detail sufficient that the work could be readily performed by another contractor unfamiliar with the statement of work or other background from the agency. I do not believe that is the case here. Either there was a lot of technical direction that was undocumented or the contractor was given great leeway in determining how to proceed. I am not sure which is the case. Regardless, EPA needs to make sure the phase 2 work plan is significantly more detailed.

5. § 4.0, pg. 6: **Treatability Study, Phase 1.** All tasks (§§ 4.1-4.5) were completed reasonably satisfactorily.

6. § 5.0, pg. 9, col. 2, ¶ 3: The work plan clearly states that Figures 5-1 and 5-2 are not specific. As commented elsewhere, these should have been made to be specific,

especially given EPA's criticisms of these figures (provided in the form of a letter to HLA by EPA's Wayne Praskins).

7. § 5.0, pg. 10, col. 1, ¶ 3: GET-B treatment is mentioned, but there is no description of the process. There should have been as discussed elsewhere.

8. § 6.1, pg. 10, col. 2: **System start-up and operation.**

   (a) ¶ 2: The work plan mentions "microbial seed," but does not explain what the phrase means. The nature of the inoculum required substantially more description. None of this is in the report text either.

   (b) ¶ 3: The work plan specifies a two-week start-up period. The report text does not say if this was actually followed. The report should stand alone; the work plan should not be necessary for understanding the final report.

   (c) ¶ 4: The work plan specifies a one-week recycle mode for growth and attachment. In addition to requiring further elaboration in the plan, the final report also needs to discuss this. See also comments on the report.

9. § 7.2, pg. 12, col. 2: Sample port locations were given in § 5.0 on pg. 10. This is a redundant listing.

10. § 7.2, pg. 12, col. 2–pg. 13, col. 1: Considerably more rigorous detail should have been in the work plan regarding sampling. EPA accepted an insufficient number of replicate samples to be meaningful in this particular study where there are so many unknown factors. This has been discussed more in the review of the phase 2 work plan.